

Section 4-5: Independent and Dependent Events

By the end of this lesson, you should be able to answer:

- How do you find probabilities of dependent events?
- How do you find the probability of independent events?

Where you might see this in the real world:

- Government, health, sports, games

Define the following terms:

1. Independent

2. Dependent

There are many different ways that we can deal with finding probabilities. Sometimes we will draw cards out of a deck of cards. If we draw a single card out of a deck of cards, we can either keep it out of the deck, or replace it. In our simulations up to this point, we replaced the card.

For the times that we replace the card, we were dealing with independent events. That means that if I drew the three of hearts out of my deck of cards and put it back in, I still had the same chance of pulling each card again, which is $1/52$.

However, if I were to draw the three of hearts out and keep it out, now the probability of drawing another card has changed, as there is one fewer card in the deck. This is an example of dependent events, as the probability of one event depends on another event.

Example 1: (Independent Events)

Matt Mitarnowski draws a card at random from a standard deck of cards. He identifies the card then replaces it in the deck. Then he draws a second card. Find the probability that both cards will be black.

Example 2: (Dependent Events)

Fuzzy Jeff takes a deck of cards and draws a card at random. He identifies it and does not return it to the deck. He then draws a second card. What is the probability that both cards are black?

Problem Set:

“MOST PEOPLE WOULD RATHER BE CERTAIN THEY’RE MISERABLE THAN RISK
BEING HAPPY.” – ROBERT ANTHONY